PETITION FOR INSIGNIFICANT PROJECT MODIFICATION

Natural Gas Pipeline Relocation Around Proposed Cosumnes River Boulevard Interchange

SMUD Cogeneration Pipeline Project
Docket No. 92-AFC-2P

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AFC	Application for Certification
APE	Area of Potential Effect
bgs	below ground surface
BMP	best management practice
BRMMP	Biological Resources Mitigation and Monitoring Plan
Caltrans	California Department of Transportation
Carson Ice-Gen	Carson Ice Cogeneration Project
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRHR	California Register of Historical Resources
DOT	Department of Transportation
ECORP	ECORP Consulting, Inc.
EIR	Environmental Impact Report
GLO	Government Land Office
GPS	global positioning system
HDD	horizontal directional drilling
I-5	Interstate 5
LORS	Laws, Ordinances, and Regulations
msl	mean sea level
MW	megawatt
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	North State Resources, Inc.
Petition	Petition for Insignificant Project Change
PG&E	Pacific Gas and Electric

$PM_{2.5}$	particulate matter less than 2.5 microns
PM_{10}	particulate matter less than 10 microns
PRC	Public Resources Code
ROW	right-of-way
SCADA	supervisory control and data acquisition
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SVP	Society of Vertebrate Paleontologists
SWCA	Steven W. Carruthers Associates
SWPPP	Stormwater Pollution Prevention Plan
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
^oF	degrees Fahrenheit

1.0 INTRODUCTION

1.1 Summary

The Sacramento Municipal Utility District (SMUD or District) proposes to relocate an approximately 0.6-mile (3,200-foot) segment of the existing 20-inch Cogeneration Natural Gas Pipeline (Line 700-A)—presently between Stonecrest Avenue and approximately 0.5 mile south of Stonecrest Avenue—to make way for the proposed Cosumnes River Boulevard Interchange. The existing pipeline location would cross Interstate 5 (I-5) five times within the proposed alignment of the Cosumnes River Boulevard Interchange. Pipeline relocation is necessary to avoid potential damage to the pipeline from construction of the interchange, for pipeline maintenance, and to meet objectives for safety and reliability.

Pursuant to Section 1769(a) of the California Energy Commission's (CEC's or Commission's) Siting Regulations (Title 20, California Code of Regulations (CCR), Section 1769(a)), the Sacramento Municipal Utility District respectfully submits this petition to modify the SMUD Cogeneration Pipeline Project Description, which was approved by the Commission on May 11, 1994 (CEC Docket No. 92-AFC-2P) by re-locating a section of the gas pipeline around the proposed Cosumnes River Boulevard Interchange.

1.2 Organization of the Petition

The Petition for Insignificant Project Change (Petition) is based on the requirements of Section 1769(a) of the CEC's Siting Regulation (20 CCR 1769(a)), describing the contents of Post Certification Amendments. The Petition provides the following:

A) A complete description of the modification;

B) A discussion of the necessity for the modification;

C) An explanation of why the modification was not known at the time of the certification;

D) An explanation of why the modification should be permitted;

E) An analysis of the impacts the modification may have on the environment;

F) An analysis of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;

G) A discussion of how the modification affects the public;

H) A list of property owners potentially affected by the modification; and

I) A discussion of the potential effect on nearby property owners, the public and parties in the application proceedings.

The organization of this Petition is based on communications between Commission staff and SMUD who have concluded that the pipeline relocation would not substantially differ from the original project evaluated in 1992 to 1994 for any of the other environmental impact concerns.

1.3 Project Background

The SMUD Cogeneration Pipeline was certified by the Commission (Docket No. 92-AFC-2P) on May 11, 1994. The pipeline project was constructed in 1995 and became operational in 1996. The Cogeneration Pipeline serves a total of 924 megawatts (MW) of electrical generation from three cogeneration plants in the Sacramento Area and a combined cycle plant south of Sacramento:

- Carson Ice Cogeneration Project (Carson Ice-Gen) located at the Sacramento Regional Wastewater Treatment Plant in south Sacramento;
- Campbell Soup Company Cogeneration Power Project in Sacramento;
- Procter and Gamble Cogeneration Power Project in Sacramento; and
- Cosumnes Power Plant, 500-MW combined cycle power project near Herald, California, respectively.

The pipeline originates at the Pacific Gas and Electric Company (PG&E) Gas Lines 400 and 401, north of Winters, in Yolo County. One branch (700-A) terminates at the Carson-Ice-Gen Project, and one branch (700-B) originates at the Morrison Creek cross-tie and terminates at the Procter and Gamble Cogeneration Power Project. Another branch (800-C) originates at the Carson-Ice-Gen Project and terminates at the Cosumnes Power Plant near Herald, in Sacramento County.

The pipeline is approximately 76 miles long (including 26 miles (01-AFC-19) added to the 1994 certification), but the relocation proposed in this Petition is short (less than 2 percent of the total length). The proposed work would be located within a relatively developed area and impact avoidance measures and mitigation can be incorporated into the design. As a result, a Petition for Insignificant Project Modification is considered the appropriate vehicle with which to authorize this modification.

1.4 Description of Proposed Modification

1.4.1 Present Route

Line 700 will be relocated from existing pipeline Station 1917+89 to approximately 1953+26. Figure 1 shows the project location and the regional setting for the pipeline. Figure 2 shows the locations of both the existing and the proposed gas pipeline alignments. In the area proposed for relocation, Line 700 presently follows the north side of Stonecrest Avenue on the west side of I-5, north of a large diameter sewer force main constructed in 2005-06. The pipeline crosses under I-5, perpendicular to the direction of traffic, and then makes a 90-degree turn and continues south along the east side of I- 5.

1.4.2 Horizontal Alignment

The proposed relocation would cross north-to-south under Stonecrest Avenue on the west side of I-5, run eastward parallel to Stonecrest Avenue and then follow the California Department of Transportation (Caltrans) right-of-way (ROW) southerly for approximately 0.4 mile on the west side of I-5. From there, it would turn 90 degrees to the east and cross under I-5 perpendicular to traffic,

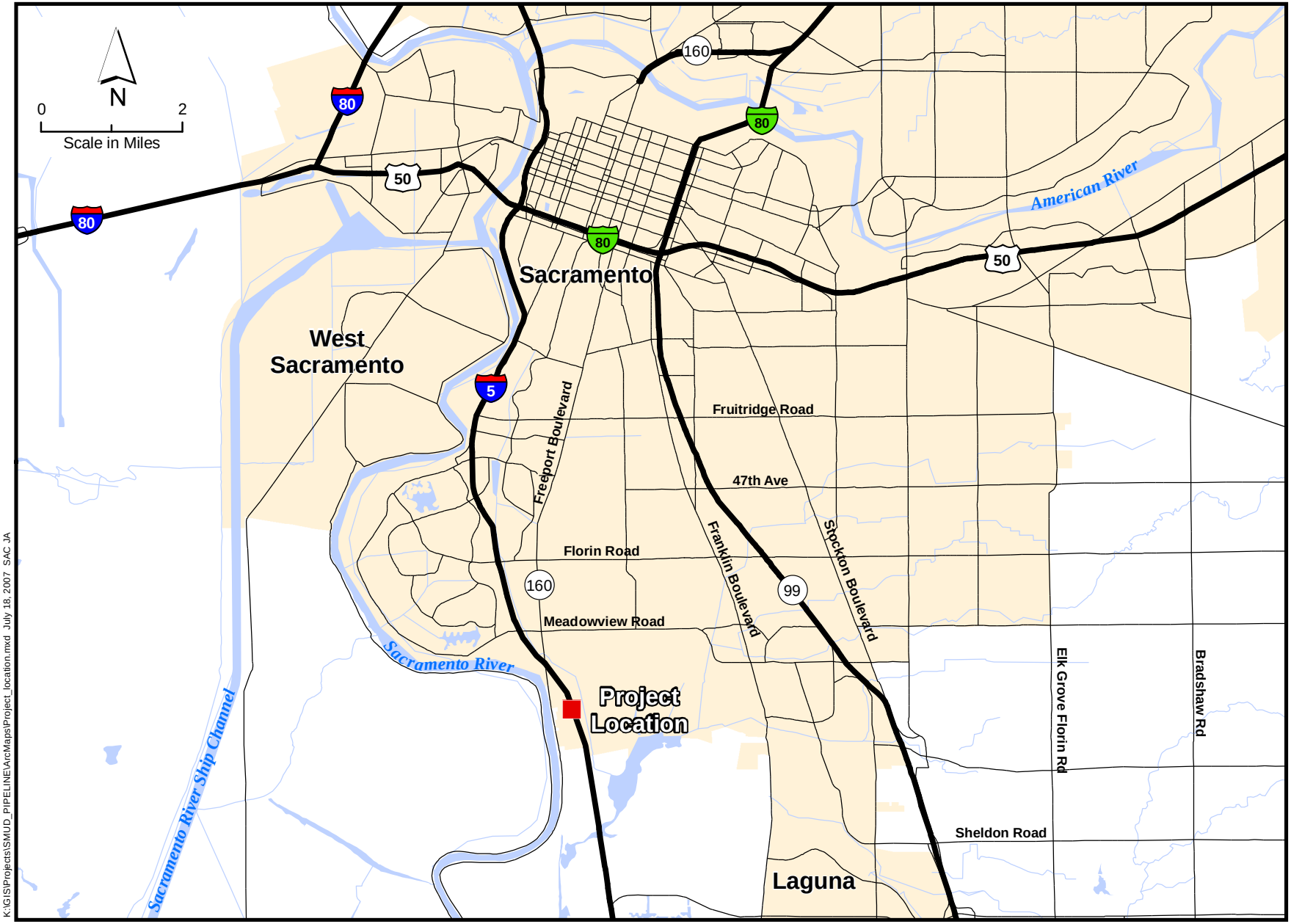

Figure 1. Project Location

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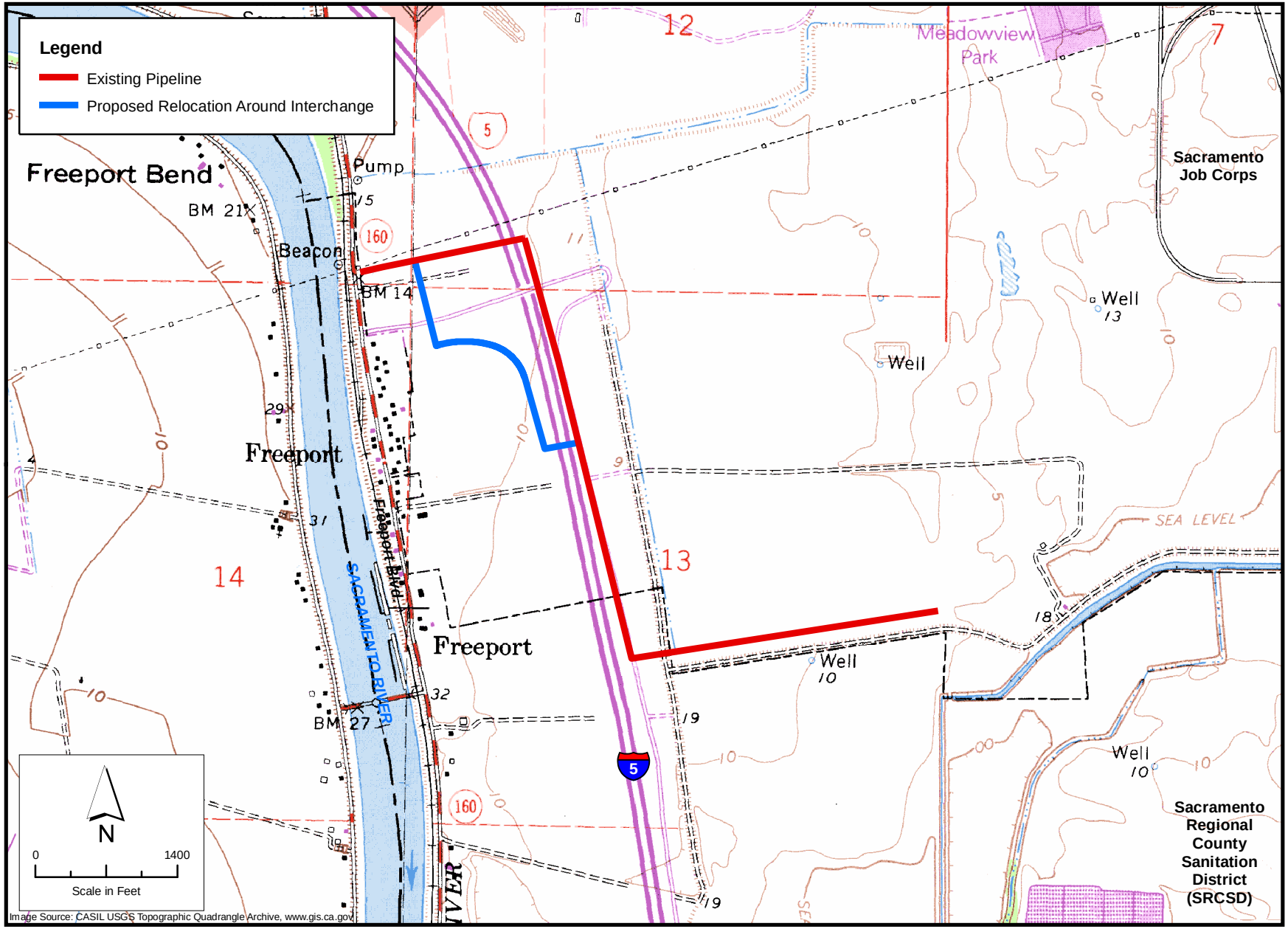

Figure 2. Proposed Pipeline Alignment

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where it would reconnect with the original line on the east side of I-5. The pipeline ROW is located adjacent to the Caltrans ROW.

1.4.3 Construction Area and Corridor

The land crossed by the proposed pipeline relocation is presently tilled farmland that has been planted in years past with alfalfa, wheat or corn. In 2005, SunCal Delta Shores, LLP and Dunmore Homes proposed to develop 1,000 acres owned by M&H Realty Partners VI, LP (M&H) for residential and commercial use. The projects are called "Delta Shores" and "Stone-Boswell." In preparation for the residential development, M&H commissioned wetland delineations and biological surveys of the property, which encompasses nearly all of the area that would be affected by the pipeline relocation. Topographic maps, biological and wetlands surveys completed for Delta Shores were reviewed as part of this effort, and were considered in evaluating impacts to environmental resources from the pipeline relocation.

The construction ROW would be a corridor 85 feet wide. Staging, equipment laydown, and site access will be entirely contained within the 85-foot ROW. The permanent easement for the pipeline after construction would be 40 feet wide.

Additional areas will be needed for staging and laydown for the I-5 crossing. An elongated rectangular area would be needed on each side of I-5 for a pit and hammer of the jack-and-bore, or launching and retrieval of horizontal directional drilling (HDD), as well as pits and staging areas for equipment and drilling mud. The launch side would require a temporary staging area 150 feet long by 100 feet wide. The retrieval side would potentially require an area of the same size or slightly smaller.

1.4.4 Construction Elements

1.4.4.1 Pipe Specification

The new pipeline would be constructed of 0.5-inch steel, coated with a fusion-bonded-epoxy corrosion-resistant coating. This standard steel thickness has the advantage of allowing Class 3 uses within 40 feet of the gas pipeline, where thinner-walled pipe requires greater setbacks. Since planned development in the vicinity has not been finalized, this pipe thickness will add to the safety associated with the area's future growth.

1.4.4.2 Construction Procedure

Construction would consist of the following steps:

- Clearing the ROW and stockpiling topsoil;
- Loading and stringing pipe;
- Welding pipe sections and applying corrosion-resistant protective coating;
- Excavating the trench;
- Lowering pipe into the trench;

- Excavating launch and receiving pits for jack-and-bore;
- Installing pipe in the jack-and-bore by percussion hammer;
- Welding jack-and-bored pipe to pipeline;
- Connecting to existing pipeline and abandoning old pipe section;
- Filling trench and compacting; and
- Spreading topsoil and restoring topography.

1.4.4.3 Construction Vehicles and Equipment

Equipment to be used to install the pipe will not be known until the project is awarded to a construction contractor, but is expected to be similar to that listed in Table 1.

Table 1. Estimated Vehicles and Equipment Needed for Construction

Vehicles and Equipment	Number of Vehicles	Construction Activity
Bulldozer	1–2	Clear ROW, scrape and stockpile topsoil, fill and cover trench
Flatbed truck/Tractor trailer	20 trucks	Delivers pipe, large construction equipment, truck-mounted welding units.
Personal transport vehicles	20/day	Transport workers to project construction site
Sheepsfoot compactor	1	Compact soil over pipeline
Side-boom tracked dozer	2–3	Lift pipe and lower into trench
Tracked excavator	1–3	Dig trench for pipe installation, and re-fill with soil
Truck-mounted welding units	3–4	Weld pipe sections together before installation
Water truck	1	Water roads to reduce dust
Wheeled gradall	1	Unload and maneuver pipe

1.4.4.4 Road, Highway and Drainage Ditch Crossing

The new gas pipeline route would cross several surface features, including Stonecrest Avenue, a farm field drainage ditch, and multiple lanes of I-5. The recommended method to cross each of these features is described in the following paragraphs:

Stonecrest Avenue – Cross by open trench. Stonecrest Avenue presently dead-ends at the bufferlands surrounding the Sacramento Regional Wastewater Treatment Plant, and carries very little traffic. Stonecrest Avenue will be reconfigured, repaved and widened during construction of the new overcrossing, and there are no sensitive resources near the road. Therefore, the most efficient method of crossing the road would be via open trench.

Drainage Ditch – Cross by open trench. There is an agricultural irrigation/drainage ditch located approximately 400 feet north of Stonecrest Avenue that crosses the proposed pipeline relocation

route. Flow in the irrigation ditch is intermittent and it is not known to support any federally protected species. Therefore, the District may choose to seek authorization to open trench through the ditch, pursuant to a Nationwide Permit from the U.S. Army Corps of Engineers (USACE), or to use a trenchless method that will not require a federal permit.

Interstate 5 – Cross by Jack-and-Bore or Horizontal Directional Drilling (HDD). A trenchless construction method will be used to cross beneath I-5 so that traffic will not be disrupted. The District generally prefers a jack-and-bore approach. For jack-and-bore, pits of approximately 20 feet by 20 feet would be dug by excavator to a depth of approximately 16 feet below ground surface (bgs) on each side of I-5. A short section of pipe is inserted into the pit and pounded horizontally under the highway until it emerges on the opposite side. Typically, a jack-and-bore hammer is a reciprocating, diesel-powered percussion hammer. Once the pipe is installed, it is joined with connecting pipe on both sides.

Trench Filling and ROW Restoration. After construction, the trench would be backfilled with soil and compacted using a rolling sheepsfoot compactor. The pipeline alignment would be filled and compacted to match the pre-construction contours. Topsoil stockpiled along the ROW will be spread back over the ROW and stabilized with seed and mulch, or as requested by the farmer who operates the property.

Based on preliminary designs, there will be no above-ground pipeline features. Gas pipeline markers consisting of paddle signs would be installed where the pipeline crosses under surface features (e.g., both sides of Stonecrest Avenue, and both sides of I-5).

Pipeline Abandonment. Once the relocated pipeline segment is installed, the obsolete pipeline segment would be abandoned in compliance with federal Department of Transportation (DOT) and SMUD standards. Abandonment generally consists of purging with air or nitrogen, filling the old pipeline with slurry and capping both ends in place. For relatively short runs of pipe (as is the case with the proposed relocation), U.S. DOT regulations allow purging and welding caps on both ends in place without placement of slurry mix.

1.4.5 Construction Schedule

The project is proposed to be constructed in summer 2009, beginning July 1 and lasting for approximately two months (if procurement, permits and interchange coordination succeeds, then potentially the project may commence construction in summer 2008). The new gas pipeline would be "tied-in" to the existing pipeline during one week in mid-October 2009 (or if applicable mid-October 2008). Although the construction activity is brief, the timing constraints are significant. It will be necessary to remove the active pipeline from service during the actual connection to the new pipe. Because Line 700 supports approximately 924 MW of the electrical load in the Sacramento Region, timing is critical. The District has determined that the October electrical load is lowest and, therefore, supportable from external sources, after summer cooling demands and before the winter increase in the electrical load. Also there is some risk of delays involved with any underground construction should, for example, unidentified infrastructure or cultural features discovered during construction. To allow schedule flexibility to accommodate potential "finds," the District proposes to

dig trenches, weld and lay in the pipe generally from north to south, then cover and leave the pipeline in place until an October connection date.

Construction during summer months avoids and minimizes potential environmental and biological impacts in the following ways:

- Minimizes construction safety hazards and quality issues associated with working during the wet season;
- Largely avoids potential for adverse impacts from stormwater runoff during construction;
- Minimizes the need for dewatering or wastewater disposal; and
- Maximizes the available daylight work hours for rapid completion.

1.5 Necessity of the Modification

This pipeline modification is necessitated by the planned alignment of the new Cosumnes River Boulevard Interchange. Overcrossing construction would require installing concrete pilings and a slight re-alignment of the roadway. The Final Environmental Impact Report (EIR) for the Cosumnes River Boulevard Interchange (City of Sacramento, 2007) determined that the pipeline installation and maintenance would interfere unacceptably with a major transportation corridor. Both the City and County of Sacramento have determined that completion of the Cosumnes River Boulevard Interchange is in the best interests of the public and addresses a continuing need for a new east-west traffic conveyance. According to the Final EIR, "because of the size, content and pressure of the gas pipeline, the pipeline must be located outside of the proposed interchange area."

1.6 Modification Was Not Known at the Time of the Certification

The proposed project modification was not known and could not have been known at the time of the Application for Certification (AFC) in 1994. Formal plans to build the Cosumnes River Boulevard Interchange were not proposed until 2005.

1.7 Why the Modification Should be Permitted

The proposed project modification would allow construction of the interchange at the proposed location without reducing the safety and reliability of a major gas pipeline serving thermal energy plants in the greater Sacramento area.

2.0 POTENTIAL ENVIRONMENTAL IMPACTS

2.1 Air Quality

The 1994 Commission Decision identified that construction emissions would occur from vehicle emissions, pipeline purging and fugitive dust from construction activities and construction vehicle exhaust. The Commission Decision noted that the project construction-related emissions would be temporary and that implementation of Conditions of Certification would mitigate the air quality impacts to insignificant levels. The Conditions of Certification were specific mitigation measures to reduce fugitive dust emissions. The Commission Decision (for 700 A/B) concluded that the original 49-mile pipeline construction project would not result in significant impacts to the environment with respect to air quality.

The proposed pipeline relocation is approximately 3,200 feet in length (0.6 mile) versus the original project pipeline length of 49 miles (the 01-AFC-19 length adds an additional 26 miles); therefore, the emissions and impacts associated with the proposed relocation will be considerably less than the original project.

The proposed relocation of the 0.6-mile segment of the pipeline will generate short-term construction emissions including fugitive dust and construction equipment combustion emissions. For this proposed relocation, the excavation, pipe installation, backfilling, and site cleanup will be performed in approximately 1000-foot-long sections over a short duration to minimize fugitive dust and construction equipment combustion emissions.

The proposed pipeline relocation is located in Sacramento County, which is currently classified as non-attainment for the federal ozone and particulate matter less than 10 microns (PM_{10}) ambient air quality standards and non-attainment for the State ozone, PM_{10} and particulate matter less than 2.5 microns ($PM_{2.5}$) standards.

Since the 1994 Commission Decision and pipeline construction, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has published the "Guide to Air Quality Assessment in Sacramento County" [SMAQMD, 2004] that discusses construction air quality impacts. The primary purpose of the Guide is to provide a means to quickly identify proposed development projects that may have a significant adverse effect on air quality. The document also provides mitigation measures developers can use to reduce the air quality impacts of projects.

SMAQMD has adopted a construction emission threshold of significance of 85 pounds per day of oxides of nitrogen (NO_x) emissions. NO_x is a precursor to ozone formation. SMAQMD has not established a threshold of significance for PM_{10} emissions.

The SMAQMD Guide recommends the use of The Roadway Construction Emissions Model for estimating NO_x emissions from road construction, road widening, bridge and overpass construction and pipeline construction projects, because the use of manual calculations or the URBEMIS model have shortcomings for such projects [SMAQMD, 2004, page 3-3]. The Roadway Construction

Emissions Model, an Excel-based spreadsheet model, was commissioned by the Air Districts of the Sacramento Region to provide a methodology specifically used for quantifying the emissions impacts of road construction projects. The model estimates emissions for load hauling, worker commute trips, construction site fugitive PM_{10} dust, and off-road construction vehicles.

The Roadway Construction Emissions Model, as recommended by the SMAQMD Guide to Air Quality Assessment in Sacramento County, was used to estimate emissions from the proposed pipeline relocation. The model includes up to 25 different types of construction equipment. A best-fit estimate was used for entering the equipment in the model because the equipment list available for input in the model does not exactly match the equipment identified in the project description.

The construction equipment identified in the project description will not all operate on the same day. Additionally, some equipment will only operate for a limited number of hours per day. Therefore, for this emissions analysis, an estimate has been made of the maximum equipment that will be used in a single day, as listed below.

- Maximum of 1 acre of disturbed area per day
- 20 workers commute (20 miles one way)
- 1 Compactor
- 1 Dozer (6 hr/day)
- 2 Excavators
- 1 Grader (6 hr/day)
- 1 Rubber-tired loader (6 hr/day)
- 1 Scraper (6 hr/day)
- 1 Signal board
- 1 Water truck (3 miles)
- 8 round-trip truck deliveries (30 miles round trip)

The model output results, based upon the above inputs, indicate a worst-case estimate of a maximum of 73 pounds of NO_x emissions per day, and 10 pounds of PM_{10} emissions per day. A copy of the Roadway Construction Emissions Model input and results are provided in Appendix A.

This worst-case estimate of maximum daily NO_x emissions is below the SMAQMD threshold of significance and indicates that additional mitigation measures are not necessary, in accordance with the SMAQMD guidance.

Therefore, in addition to complying with current laws and regulations, the existing Conditions of Certification are adequate to protect the environment with respect to air quality.

2.2 Public Health

The 1994 Commission Decision described that the most significant potential source of public exposure to health hazards would result from the accidental release into the atmosphere of natural gas carried by the pipeline. Testimony included in the Commission Decision described that there would be no substances emitted from the pipeline during normal operation but that a breach could lead to a release of natural gas. The primary component of natural gas is a potential asphyxiant in high concentrations and could cause fire and explosion. SMUD receives odorized gas prior to it entering the system to warn against leaks or releases. The District has committed to design, construct, and operate the pipeline to meet or exceed all applicable safety requirements.

A risk analysis for the project showed that the maximum acute and chronic non-cancer health effects for non-criteria pollutants were less than one-one hundredth of the level required to produce any adverse health effects in humans. The Commission staff stated they expected no significant health impacts from public exposure to criteria pollutants from the proposed pipeline project.

The material that will be carried in the pipeline is the same as that described in 1994, and is subject to the same potential risk of upset. The conditions imposed in the 1994 Commission Decision are adequate to prevent significant adverse impacts to public health resources.

2.3 Waste Generation

Construction of the pipeline produces relatively small amounts of waste consisting of waste steel from cut-off pipe segments, waste weld rod, small containers of pipeline coating, waste lubricants, small amounts of wood blocking, typical domestic trash and sanitary waste.

Most of the waste produced has value as recycled scrap and, therefore, with the exception of domestic trash and sanitary waste, most of the materials will be sold for recycling as scrap. Domestic trash will be removed from the site at least weekly for disposal by one of several available Sacramento-area waste management companies. Sanitary waste (porta-potties) will be rented from and serviced by local vendors.

Because the quantities of waste generated by construction will be small, implementation of the existing conditions would be adequate to prevent adverse impacts from waste-generation impacts.

2.4 Noise

The original 1994 Commission Decision noted that there would be some intrusive noise impacts during project construction but that these would be temporary and limited to 6 a.m. to 8 p.m. on weekdays and 7 a.m. to 6 p.m. on weekends. It further determined that the operation would not result in significant impacts and that Conditions of Certification adopted as part of the project would reduce project related noise to the maximum extent possible. Conditions were applied that required notification of potentially affected parties, establishment of a noise complaint phone number and procedure, and preconstruction noise survey to identify equipment that could produce elevated noise.

Implementation of the existing conditions would be adequate to prevent adverse impacts from noise impacts.

2.5 Water Resources

Impacts to water resources described in the 1994 Commission Decision focused on the temporary effects to water resources during construction and the potential for sedimentation and stormwater runoff during construction. Mitigation measures to reduce adverse impacts to water quality from construction were proposed, including complying with a Construction Stormwater Pollution Prevention Plan (SWPPP) (required by the State Water Resources Control Board). The SWPPP requires implementation of best management practices (BMPs) such as stabilized construction entrances, straw wattles, and site stabilization and revegetation to avoid and minimize adverse effects.

As noted above, construction of the relocated pipeline is planned between July 1 and mid-October, 2008. This corresponds to the dry season, when water quality impacts are unlikely to occur. Once completed and surface soil is stabilized, the buried pipeline would cause no continued source of water quality degradation.

Conditions to protect water specified under the 1994 Commission Decision include:

- Water-1: The project owner will submit an approved Spill Prevention Control and Counter-Measure Plan.
- Water-2: The project owner will acquire a National Pollutant Discharge Elimination System (NPDES) permit for discharge of hydrostatic test water.
- Water-3: The project owner will, if necessary, obtain waste discharge requirements (WDRs) for water discharged.
- Water-4: The project owner will prepare a set of as-built plans.

In addition to these conditions, the District would comply with the NPDES General Order for Construction Stormwater and the Clean Water Act. Therefore, in addition to complying with current laws and regulations, the existing Conditions of Certification are adequate to protect the environment with respect to water quality.

The District requests that conditions requiring vegetation restoration be suspended or made conditional based on the existing land use (annual crops) and likely future use (residential and commercial development). If the site is to be planted (farmed) or imminently graded for development, revegetation should not be required. Implementation of the conditions applied to the 1994 Commission Decision will adequately protect water resources from adverse impacts.

2.6 Soil Resources

Impacts to soil resources described in the Commission Decision focused on the temporary effects on soil during construction and the potential for soil erosion during construction. Mitigation measures to

reduce soil erosion during construction, such as straw bales and post-construction surface restoration, were proposed as conditions. In addition it was noted that slurry management associated with drilling is managed under water quality protection. Once completed, the buried pipeline would impose no limitations on soil uses. The conditions imposed in the 1994 Commission Decision are adequate to prevent significant adverse impacts to soil resources. The District requests that conditions requiring vegetation restoration be suspended or made conditional based on the existing land use (annual crops) and likely future use (residential and commercial development).

2.7 Biological Resources

The potential biological impacts of relocating the gas pipeline were analyzed by reviewing existing documents, and performing new surveys for confirmation. Consultants working for the District reviewed the existing 1994 Commission Decision; the Final EIR for the I-5/Cosumnes River Boulevard Interchange Project (February and December, 2006); and various supporting documents to the Delta Shores project (Wetland Delineation, Sensitive Status Species Assessment, Arborist Survey report, etc.). Finally, supplemental field surveys were performed over the proposed project area to confirm the location and extent of wetlands, sensitive biological resources and nesting raptors. Trees and potential nest sites out to 0.5 mile from construction were surveyed for Swainson's hawk activity. The resulting analysis prepared by North State Resources, Inc. (NSR) (Appendix B) indicates that the existing conditions for the pipeline are adequate to protect biological resources during project construction and operation.

2.7.1 Summary of the Commission Decision

The 1994 Commission Decision analyzed the proposed facility to determine whether it could be constructed and operated in a manner that protects biological resources, and whether the project would have a significant impact on these resources. The decision described surveys and research by Mr. Stephen E. Leach, biologist with Woodward-Clyde Consultants, over a 1,000-foot wide survey corridor. The environment was described as largely converted to agriculture and urbanization with the development of irrigation and flood-control structures along streams and rivers. Development has reduced natural habitats to pockets of soils, freshwater marsh, riparian woodlands, and vernal pools.

The decision identified temporary surface activities associated with construction, and potential disturbances of fairy shrimp, dwarf downingia, alkali milkvetch, valley oak tree, Swainson's hawk and burrowing owl, giant garter snake, and valley elderberry longhorn beetle.

Based on the evidence, the Commission made findings that (1) construction poses a slight risk of potential impacts to several state listed and one federal-listed species; (2) the proposed mitigation measures would likely ensure adequate supervision and adequate program to increase employee awareness of sensitive biological resources; (3) construction and operation are not likely to have significant negative impact on biological resources; and (4) the project is likely to comply with all laws and regulations.

Four Conditions of Certification were applied to the project, paraphrased as follows:

1) CEC will approve a designated biologist for the project.
2) The project owner will implement an Employee Environmental Awareness Program.
3) The project owner will implement the approved Biological Resources Mitigation and Monitoring Plan for this project.
4) If required by the California Department of Fish and Game (CDFG), the owner will enter into an Endangered Species Memorandum or Understanding per Section 2081 of the California Endangered Species Act.

2.7.2 Environmental Setting

As noted above, NSR performed supplemental biological resources surveys and analysis. The following text is largely extracted from their final report.

The study area is located in the Sacramento Valley, between Sacramento and Elk Grove. The topography of this region is nearly level with an elevation of approximately 10 feet above mean sea level (msl). The climate is characterized as Mediterranean with cool, wet winters and hot, dry summers. Precipitation is on average 20 inches annually, most of which occurs as rain between November 1 and April 30 [Western Regional Climate Center, 2007]. Air temperature ranges between an average January low of 41 degrees Fahrenheit (ºF) and an average July high of 93ºF. The year-round average high is approximately 75ºF and the year-round average annual low is 51ºF. The Soil Survey of Sacramento County, California [U.S. Department of Agriculture (USDA), 1993] identifies and describes the following three soil mapping units within the study area. Each is considered a hydric soil [USDA Soil Conservation Service, 1992].

- 135 – Dierssen clay loam, deep, drained, 0 to 2 percent slopes
- 141 – Egbert clay, partially drained, 0 to 2 percent slopes
- 222 – Scribner clay loam, partially drained, 0 to 2 percent slopes

The study area is generally located west of I-5 and east of the Sacramento River at Freeport, and has one I-5 crossing. The majority of the proposed gas pipelines traverses through leveled agricultural fields planted in safflower (*Carthamus tinctorius*), with a proposed crossing of the I-5 roadside environment. Nearly the entire study area had been surveyed previously by ECORP Consulting, Inc. (ECORP) for the West Delta Shores and the East Delta Shores Residential Development projects. The ECORP surveys did not include the I-5 roadside environment (subsequently surveyed by NSR and reported here). ECORP produced the following documents to report their findings:

- Wetland Delineation for West Delta Shores, dated May 10, 2006; revised: June 13, 2006.
- Special-Status Species Assessment for West Delta Shores, dated August 18, 2006.
- Arborist Survey Report for West Delta Shores, dated August 17, 2006.
- East Delta Shores Revised Wetland Delineation, dated July 13, 2006.
- Special-Status Species Assessment for East Delta Shores, dated August 18, 2006.

- Arborist Survey Report for East Delta Shores, dated June 15, 2006.
- Cultural Resources Survey and Evaluation Delta Shores, dated June 2006.
- 2006 Dry Season Survey 90-Day Report of Findings Regarding Federally Listed Branchiopods for Delta Shores East, dated March 7, 2007.
- Report of Findings Regarding Federally Listed Branchiopods for East Delta Shores, dated August 28, 2006.
- U.S. Army Corps of Engineers Delta Shores Wetland Delineation Verification, dated November 7, 2006

2.7.3 Analysis Methodology

Prior to conducting the field assessment, the following information sources were reviewed:

- Florin, California United States Geological Survey (USGS) quadrangle.
- The ECORP wetland delineation and special-status species reports.
- California CDFG California Natural Diversity Data Base (CNDDB) records for the Florin, California USGS quadrangle and the surrounding eight quadrangles (Clarksburg, Sacramento West, Sacramento East, Carmichael, Elk Grove, Galt, Bruceville, and Courtland) (see Appendix B).
- U.S. Fish and Wildlife Service (USFWS) list of endangered and threatened species that may occur in or be affected by projects in the Florin, California USGS quadrangle (see Appendix B).
- California Native Plant Society (CNPS) list of Rare and Endangered Plants records for Florin, California USGS quadrangle (see Appendix B).
- Pertinent literature, including: Inventory of Rare and Endangered Vascular Plants of California [Appendix B: CNPS, 2001]; The Jepson Manual of Higher Plants of California [Appendix B: Hickman, 1993]; California's Wildlife Volume 1: Amphibians and Reptiles [Appendix B: Zeiner et al., 1990b]; California's Wildlife Volume II: Birds [Appendix B: Zeiner et al., 1990a].

Field assessments of the study area were conducted by NSR biologists Julian Colescott and Deborah Stout on April 24 and April 25, 2007. The study area was surveyed by walking pedestrian transects to assess habitat types, evaluate the potential for the occurrence of special-status species, determine the presence or absence of waters of the United States, including wetlands (waters), and determine presence or absence of protected trees.

All resources observed in the field were compared to the ECORP documents as part of a peer review process. Because the ECORP investigation did not include the I-5 roadside environment, a routine delineation of "waters" (wetland delineation) was conducted on the I-5 roadside where the study area crosses the highway. The wetland delineation followed the procedures described in the Corps of Engineers Wetland Delineation Manual [Appendix B: Environmental Laboratory, 1987] and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region [Appendix B: USACE, 2006].

During the field visit, an inventory of existing plant species was also recorded. Prior to visiting the field, a list of the special-status species with the potential to occur in the region was developed and used as a target list for rare plants. All plants observed in the field were recorded.

The field visit also included a survey for nesting birds of prey (raptors) in suitable habitat on the east side of the Sacramento River within 0.5 mile of the alignment. The survey was conducted by dividing the survey area up between the two biologists. The biologists walked the levee, one covering the riverside habitat and the west side of the trees in Freeport and the other covering the tree rows surrounding the agricultural fields and the eastern trees of Freeport. The survey incorporated a dawn acoustical survey and a stand search, as described in the Survey Methodology for Northern Goshawks in the Pacific Southwest Region, U.S. Forest Service [Appendix B: USDA Forest Service, 2000]. Starting at dawn, the surveying biologists positioned themselves centrally in their respective survey areas to listen for raptor vocalizations and watch for raptor activity. After watching and listening, the biologists searched each tree within the survey area with binoculars to locate stick nests. Any stick nests located were determined to be occupied or not through additional observation (e.g., scanning from different directions with binoculars and sitting to observe any raptor activity). The raptor survey included a search for ground squirrel burrows that could function as burrowing owl nests.

Incidental observations of wildlife species made during the field assessment were recorded.

2.7.4 Analysis Results

Vegetation Communities

Two vegetation communities occur within the study area: cropland and urban [Appendix B: Mayer and Laudenslayer, 1988]. The cropland is currently a monoculture of safflower. Grasses, forbs and scattered trees occur around the perimeter of the fields. The dominant grasses and forbs include plantain (*Plantago lanceolata*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), pineapple weed (*Camomilla suaveolens*), yellow star-thistle (*Centaurea solstitialis*), perennial pepperweed (*Lepidium latifolium*) and California burclover (*Medicago polymorpha*). The trees observed around the field edges include Fremont cottonwood (*Populus fremontii*), black walnut (*Juglans californica*) and valley oak (*Quercus lobata*).

The urban vegetation community includes the I-5 roadside habitat, the Stonecrest Avenue roadside habitat, and the landscaping around the community of Freeport. This community is dominated by planted perennial grasses. The urban areas are mowed adjacent to I-5, but allowed to mature in areas that are set back from the highway. A vegetated roadside ditch (see the "waters" discussion below) parallels both the northbound and southbound lanes of I-5, with upland grasses present outside of the ditch. Species observed include barley (*Hordeum leporinum*), Italian ryegrass, wild oat (*Avena fatua*), smooth brome, geranium (*Geranium dissectum*) and curly dock (*Rumex crispus*).

CNDDB Query Results

According to CNDDB query results, there are reported occurrences of 18 special-status plant and wildlife species within 5 miles of the study area (Figure 3): dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), northern California Black walnut (*Juglans hindissi*), Sanford's arrowhead (*Sagittaria sanfordii*), Sacramento perch (*Archoplites interruptus*), Sacramento splittail (*Pogonichthys macrolepidotus*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), giant garter snake (*Thamnophis gigas*), northwestern pond turtle (Emys [=Clemmys] *marmorata marmorata*), western burrowing owl (*Athene cunicularia*), Cooper's hawk (*Accipiter cooperii*), double-crested cormorant (*Phalacrocorax auratus*), purple martin (*Progne subis*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

Special-Status Species

For the purposes of this assessment, "special-status" is defined to include those species that are:

- Listed as endangered or threatened under the federal Endangered Species Act (or formally proposed, or candidates, for listing);
- Listed as endangered or threatened under the California Endangered Species Act (or candidates for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as species of special concern by the CDFG;
- Plants or animals that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA);
- Plants listed as rare under the California Native Plant Protection Act; or
- Plants considered by CNPS to be "rare, threatened, or endangered in California" (Lists 1B and 2, see Appendix B).

A list of regionally occurring special-status plant and wildlife species was compiled based on a review of pertinent literature, the results of the field assessments, the results of a CNDDB query of all reported occurrences of special-status species within the Florin, California USGS quadrangle and the surrounding eight quadrangles, a query of the California Native Plant Society Inventory of Rare and Endangered Plants database [Appendix B: CNPS, 2007] for the Florin, California USGS quadrangle, and a species list obtained from the USFWS. Additionally, the following documents were reviewed for reference information: the list of State- and federally-listed Endangered, Threatened, and Rare Plants of California (see Appendix B); the California Department of Fish and Game Special Vascular Plants, Bryophytes, and Lichens List (see Appendix B); and the State of

California Special Animals List (see Appendix B). Habitat requirements for each special-status species were assessed and compared to the habitats occurring within the study area.

Based on the habitat requirements review and the field assessment results, the study area or the surrounding area (i.e., for raptors) provides suitable habitat for eleven (11) special-status wildlife species. These species include round-leaved filaree (*Erodium macrophyllum*), Swainson's hawk, bald eagle (*Haliaeetus leucocephalus*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), western burrowing owl (*Athene cuniculeria*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), and the loggerhead shrike (*Lanius ludovicianus*).

Round-leaved filaree

Round-leaved filaree is an annual herb that blooms between March and May. It occurs in cismontane woodland, valley and foothill grassland habitats in high clay content soils at elevations up to about 4,000 feet above sea level. Most collections are historical and not much is know about its current range, but the clayey soils found in the study area are thought to be suitable to support the species. However, the high level of transmogrification (altered land use due to development) has removed most of the native landscape from within the study area decreasing the likelihood that the plant occurs there. The species was not observed during the site botanical survey.

Several other rare plants occur regionally. Most of these plants occur in various types of wetland habitats. The ditch type of wetland habitats that occur within the study area are not suitable for these species due to frequent manipulation for agricultural or highway maintenance, or because the ditch features function to convey water and do not support fresh emergent wetland vegetation. Despite the general lack of suitable habitat, the botanical survey did cover the drainage and roadside ditch habitats. No special-status species were observed.

Swainson's hawk

Swainson's hawks require large areas of foraging habitat, preferably grassland or pasture habitats. Preferred prey items are voles (Microtus sp.), gophers (e.g., Thomomys bottae), birds, and insects such as grasshoppers. They have also adapted to foraging in some croplands habitats such as alfalfa, grain crops, tomatoes, beets and other row crops. Crops such as cotton, corn, rice, orchards, and vineyards are not suitable since they either lack suitable prey or the prey is unavailable to the Swainson's hawk due to the crops structure. In the Central Valley, Swainson's hawk is generally associated with riparian habitat for nesting sites.

One active Swainson's hawk nest was observed during the raptor survey (Figure 4). Numerous other unoccupied stick nests were also observed.

Western burrowing owl

The western burrowing owl inhabits open, dry grasslands and deserts, as well as open stages of pinyon-juniper and ponderosa pine. The nesting season is between February 1 and August 31. Western burrowing owls typically nest in abandoned rodent burrows, particularly those of California

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Source: SMUD; California Department of Fish and Game CNDDB

CNDDB Occurrences*

Plants

- Dwarf Downingia (*Downingia pusilla*)
- Legenere (*Legenere limosa*)
- Northern California Black Walnut (*Juglans hindsii*)
- Sanford's Arrowhead (*Sagittaria sanfordii*)

Fish

- Sacramento Perch (*Archoplites interruptus*)
- Sacramento Splittail (*Pogonichthys macrolepidotus*)

Invertebrates

- Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)
- Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)
- Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)

Reptiles/Amphibians

- Giant Garter Snake (*Thamnophis gigas*)
- Northwestern Pond Turtle (*Emys (=Clemmys) marmorata marmorata*)

Birds

- Burrowing Owl (*Athene cunicularia*)
- Cooper's Hawk (*Accipiter cooperii*)
- Double-crested Cormorant (*Phalacrocorax auritus*)
- Purple Martin (*Progne subis*)
- Swainson's Hawk (*Buteo swainsoni*)
- Tricolored Blackbird (*Agelaius tricolor*)
- Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

Project Site

5 Mile Buffer of Study Area

1 0.5 0 1

Miles

* Points represent a geographic centroid of each polygon occurrence in the CNDDB GIS data layer provided by the CA Department of Fish and Game and are not exact locations of each observed occurrence.

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South Sacramento Gas Pipeline Relocation Project

Figure 3

CNDDB-Recorded Occurrences of Special-Status Species Within 5 Miles of Project Site

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NRD1

NRD2

2N 1

NRD3

DD-4

DD-2

DD-3

NRD4

Approximate Pipeline Locations (Existing and Proposed)

- Existing Pipeline
- Proposed Relocation Around Interchange
- 200 ft. Buffer of Proposed Pipeline Alternatives
- 1 3 Parameter Data Point (Waters)
- 2N 3 Parameter Data Point (Upland)
- Culvert
- Swainson's Hawk Nest

Non-federally Jurisdictional Features

- Roadside Ditch (0.487 Acre - 2,273 Ft)
- ECORP Delineated Drainage Ditch (0.024 Acre - 415 ft)

ECORP Delineation

- Approximate Area of ECORP Delineation
- ECORP Delineated Features Outside 200 ft. Buffer

Summary of Non-federally Jurisdictional Features

Label	Type	Acres	Length	Width
NRD1	Roadside Ditch	0.074	400	8
NRD2	Roadside Ditch	0.330	1,437	10
NRD3	Roadside Ditch	0.074	401	8
NRD4	Roadside Ditch	0.009	35	10
DD-2	Drainage Ditch	0.012	180	3
DD-3	Drainage Ditch	0.003	135	1
DD-4	Drainage Ditch	0.009	100	4
	Total	0.511	2,688	

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Notes:

Imagery Source: USDA 2005 NAIP
Delineation completed by
Julian Colescott and Deborah Stout
on April 25, 2007
Map Created by Randall Olden, July 28, 2007
Previous Delineation completed by ECORP Consulting, Inc.
Original Date: May 10, 2006
Superceded Date: June 13, 2006

This delineation of waters of the U.S., including wetlands, is subject to verification by the ACOE. NSR advises all parties to treat the information contained herein as preliminary until the ACOE provides written verification of the boundaries of their jurisdiction.

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N

0 150 300

Feet

South Sacramento Gas Pipeline Relocation Project

Figure 4
Delineated Features and Swainson's Hawk Nest

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ground squirrels, which they modify each year. Burrowing owls forage in open grassland areas adjacent to nest sites. The species has also been documented in open areas near human habitation, especially airports and golf courses. The Central Valley and surrounding foothill regions of California provide year-round habitat for the western burrowing owl.

The study area provides marginally suitable grassland habitat adjacent to the agricultural fields. These areas were surveyed as part of the raptor survey and no western burrowing owls or signs of them were observed.

White-tailed kite

The white-tailed kite can be found in association with the herbaceous and open stages of a variety of habitat types, including open grasslands, meadows, emergent wetlands, and agricultural lands. Nests are constructed near the top of dense oaks, willows, or other tree stands located adjacent to foraging areas. The species forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. White-tailed kite are seldom observed more than 0.5 mile from an active nest during the breeding season. The white-tailed kite is found year-round in both the coastal zones and lowlands of the Central Valley in California.

One white-tailed kite was observed flying over the study area during the raptor survey. Its flight was southerly beyond the southern limits of the survey area and it was not seen again. It is presumed that the bird was not nesting in the survey area.

Other raptors (bald eagle, ferruginous hawk, northern harrier, Cooper's hawk, sharp-shinned hawk)

The study area could support other raptor species, including those listed here and others that do not qualify as special-status species. All raptor species, including relatively common species (e.g., red-tailed hawks) and their nests are protected from take under California Fish and Game Code Section 3503.5. The raptor survey conducted within 0.5 mile of the site included a stand search in which all trees were searched for stick nests. Only the Swainson's hawk nest mentioned above was observed as occupied.

California horned lark

California horned larks occur in a variety of open habitats with low, sparse vegetation. They breed in the open in small depressions in the ground. California horned larks are primarily seed eaters but also feed insects to their young. This subspecies is resident in the coastal range and San Joaquin Valley to northern Baja California. No California horned larks were observed during field surveys.

Loggerhead shrike

The loggerhead shrike prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches located in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Loggerhead shrikes skewer their prey to thorns or barbs on barbed-wire fences. The purpose of this trait may be to help kill the prey or to cache the food for later consumption. Loggerhead shrikes are

found in lowlands and foothills throughout California. No loggerhead shrikes were observed during the field surveys.

2.7.5 Waters of the U.S. and Wetland Habitats

A routine delineation of waters of the U.S., including wetlands, was conducted by ECORP Consulting, Inc. in the agricultural fields, some of which correspond with the study area (Figure 4). That delineation was verified by the USACE in a letter dated November 7, 2006. The "waters" documented by ECORP were limited to drainage ditches associated with agricultural activities. The ECORP delineation (and study area) is illustrated on Figure 4.

The ditch habitat documented by ECORP appears to carry irrigation water and stormwater during winter storm events. The ditch features are scoured with very little vegetation growing within the channels. Himalayan blackberry (*Rubus discolor*) and other weedy species grow on the bank above the ordinary high water mark. The features drain to the east and ultimately connect through a series of buried pipes and/or surface drainage ditches to Morrison Creek, a tributary of the Sacramento River. The roadside ditches lacked vegetation and hydric soil indicators to be considered jurisdictional.

The I-5 roadside environment was not surveyed by ECORP, so NSR biologists conducted a routine wetland delineation in these areas. Roadside ditch habitat was observed and documented adjacent to both the northbound and southbound lanes of I-5. The vegetation in the roadside ditch habitat consisted primarily of grasses and forbs with a wetland indicator status [Appendix B: Reed Jr., 1988] of facultative (FAC[1]). The dominant species observed was barley and Italian ryegrass. Other species that constitute a minority of the roadside ditch habitat include geranium (*Geranium dissectum* – UPL), blue wildrye (*Elymus glaucus* – FACU) and curly dock (*Rumex crispus* – FACW). No obligate (OBL) plant species were observed.

The soils observed in the roadside ditch are clay loam with a matrix color of 10YR 3/1. At about 10 inches, 10YR 2/2 soil soft masses were observed. This coloration and evidence of reduction/ oxidation is consistent with the hydric soil indicator F6 in the new regional supplement of the USACE wetland delineation manual [Appendix B: USACE, 2006]. The soil pit was dug to a depth of 15 inches and no depleted matrix was observed, often an indicator that the soils are hydrated from an elevated groundwater table. Instead, the hydrology source is from the surface runoff of precipitation from I-5. A precipitation event had occurred on April 22, three days prior to the April 25, 2007 field delineation date. Surface water was still evident in low spots within the ditch and the soils at the data point were saturated at a depth of 8 inches. Neither the vegetation observed nor the hydric soil indicators suggest that long-duration ponding occurs within the ditch. Therefore, the ditch

1

OBL = Obligate Wetland Plants	estimated probability of occurring in wetland >99 percent
FACW = Facultative Wetland Plants	estimated probability of occurring in wetland >67 percent to 99 percent
FAC = Facultative Plants	estimated probability of occurring in wetland 33 percent to 67 percent
FACU = Facultative Upland Plants	estimated probability of occurring in wetland 1 percent to <33 percent
UPL = Obligate Upland Plants	estimated probability of occurring in wetland <1 percent

is not considered suitable habitat for species (e.g., vernal pool fairy shrimp) dependent on vernal pool or other seasonally inundated habitats.

2.7.6 Protected Trees

Sacramento County has a tree ordinance for the purpose of preserving the County's tree resources (Sacramento County Code 480, Chapter 19.12, Sections 19.12.010 through 19.12.240) and the Sacramento County General Plan (Policy CO-130, Section 5). The ECORP Arborist Survey Report for West Delta Shores (August 17, 2006) mapped and characterized 147 trees that would fall under the protection of the tree ordinance or the Sacramento General Plan. These trees do not fall within the alignment of the proposed modification. No trees that were overlooked by the ECORP effort were observed within the study area.

2.7.7 Biological Resources Conclusions and Recommendations

Based on information in the original Commission Decision, information in the I-5/Cosumnes Boulevard Interchange EIR, the various reports of field studies prepared by the Delta Shores project, search of the CNDDB database and supplemental confirmatory fieldwork, the following conclusions have been made:

- The habitat in the project area is dominated by cropland and urban uses. There are no intact rare habitats in the vicinity.
- The project would cross one drainage ditch and several roadside drainage ditches that are not considered to be jurisdictional.
- A pair of Swainson's hawks nested in trees approximately 1,400 feet south of the proposed construction area and could nest there again in later years. The trees are suitable for Swainson's hawk nesting.
- No burrowing owls were observed in the project area in 2007.
- All trees in the project vicinity are identified on the arborist survey reports prepared for Delta Shores. No trees would be affected by the proposed construction.
- The Commission Decision requires designation of a designated biologist; preparation and compliance with the Biological Resources Mitigation and Monitoring Plan (BRMMP), which specifies measures to pre-survey, avoid and monitor Swainson's hawk nests.

Therefore, in addition to complying with current laws and regulations, the existing Conditions of Certification are adequate to protect the environment with respect to biological resources.

2.8 Socioeconomics

The Commission Decision specified that because the Sacramento area is a large urbanized area, that impacts of the project to the population or housing market would be negligible. Testimony by commission staff indicated that the addition of 289 jobs during project construction would have a small but beneficial impact on regional employment. It was noted that SMUD implements a policy

of giving hiring preference to local workers and suppliers. The proposed project changes would require fewer than 40 construction workers, and have an even smaller impact on local housing and population. The findings of the decision and applied conditions remain adequate to avoid adverse impacts to socioeconomic resources.

2.9 Land Use

The proposed project modification does not affect the uses or conditions of land use presented in the Land Use analysis and Findings of the Commission Decision. The proposed re-route crosses an open farm field that is proposed to be developed for residential and commercial uses. Short-term construction related impacts would involve trenching and pipeline installation followed by backfilling and restoration. No adverse land-use impacts are expected during pipeline installation. No significant constraints on post-construction land use are anticipated. The conditions imposed in the Commission Decision will continue to adequately protect land use resources.

2.10 Visual Resources

The 1994 Commission Decision noted short term visual impacts of the project resulting from construction activities and that these activities would last from two to three weeks at a given site. Once completed, the underground pipeline would have only a few visual impacts, consisting of the paddle-type pipeline markers that would be placed where the pipeline crossed significant surface features (e.g., Stonecrest Avenue, I-5). Based on preliminary designs, there would be no above-ground structures, meter or regulator stations, test and valve stations, pig traps or aerial markers in the realigned section of pipe. If they are required in final design, visual screening, in accordance with local standards, will be provided. The Commission Decision findings determined that visual impacts were temporary and not significant. Mitigation measures proposed by CEC staff would further reduce visual impacts. The Conditions required restoring vegetation after construction and landscaping above-ground features. However, for the proposed relocation, the dominant vegetation comprises annual crops planted by local farmers. Thus, replacement of vegetation is not necessary for this segment. Furthermore, there is a plan to develop this area for residential and commercial uses, which will result in temporary removal of all vegetation.

Implementation of the conditions described in the Commission Decision would adequately avoid significant adverse impacts to visual resources.

2.11 Cultural Resources

The Area of Potential Effect (APE), defined for cultural resources assessment was considered to be the area within which the direct and indirect impacts of project construction may have an effect on cultural or paleontological resources. The APE for this project includes 200-foot wide corridors. The 0.58-mile length and 200-foot width for the linear corridor totals approximately 14 acres for the project APE, as shown on Figure 5.

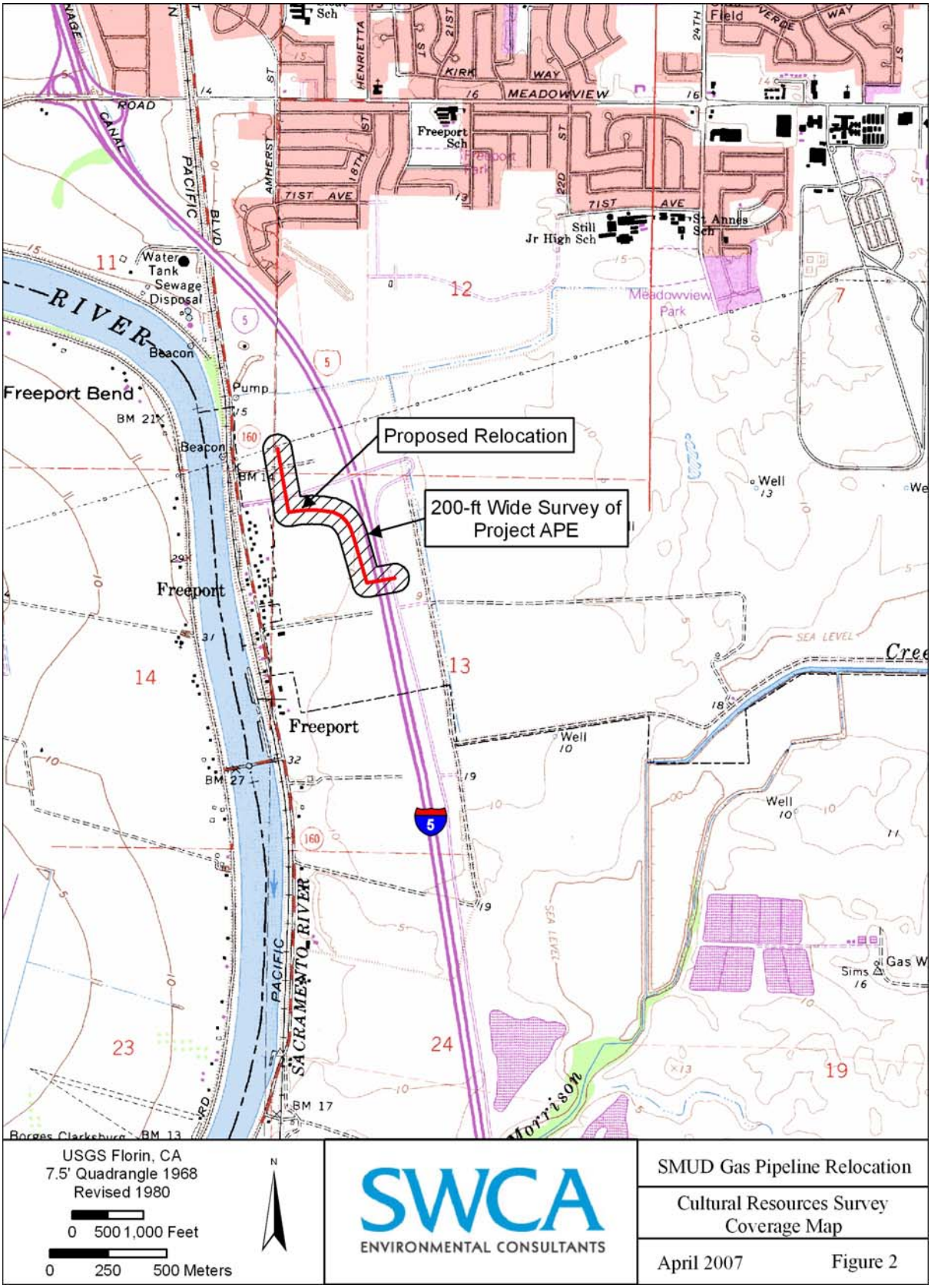

Figure 5. Cultural Resources Survey Coverage Map (from SWCA, 2007)

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The current study was completed under the provisions of Section 106 of the National Historic Preservation Act (NHPA) (36CFR800) and CEQA. The NHPA authorizes the maintenance of a National Register of Historic Places (NRHP) that facilitates the preservation of properties possessing integrity and meeting at least one of the following four criteria delineated at 36 Code of Federal Regulations (CFR) 60.4 [Appendix C: Advisory Council on Historic Preservation, 2000].

The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

(a) Are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) Are associated with the lives of persons significant in our past; or

(c) Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) Have yielded, or may be likely to yield, information important in prehistory or history.

California Public Resources Code (PRC) Section 5024.1, Section 15064.5 of the CEQA Guidelines and Sections 21083.2 and 21084.1 of the PRC were also used as the basic guidelines for the cultural resources study [Appendix C: Governor's Office of Planning and Research, 1998]. PRC Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the *California Register of Historical Resources*. The purposes of the register are to maintain listings of the state's historical resources and to indicate which properties are to be protected from substantial adverse change [Appendix C: Office of Historic Preservation, 1997]. The criteria for listing resources on the California Register were expressly developed to be in accordance with previously established criteria developed for listing on the NRHP, enumerated above.

According to PRC Section 5024.1(c)(1-4), as well as Section 15064.5(a)(3)(A-D) of the revised CEQA Guidelines [Appendix C: Governor's Office of Planning and Research, 1998], a resource is considered historically *significant* if it meets at least one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

2.11.1 Cultural Literature Search

A cultural resources report (Appendix C) for the current project was performed by the North Central Information Center (NCIC) on April 11, 2007. The search included a review of the available

documents and site records within a quarter-mile radius of the project. In addition to official maps and records, the following sources of information were consulted as part of the record search by the NCIC:

- National Register of Historic Places – Listed Properties (2006)
- California Register of Historical Resources (2006)
- California Inventory of Historical Resources (1976)
- California State Historical Landmarks (1996 and updates)
- California Points of Historical Interest (1992 and updates)
- Office of Historic Preservation Historic Property Directory and Determinations of Eligibility (2006)
- 1855 Government Land Office (GLO) Plat of Township 7 North, Range 5 East
- 1859 GLO Plat of Township 7 North, Range 4 East
- 1907 USGS Florin Quadrangle
- 1953 USACE Florin Sheet (1760 IV NW)

The records search indicates that eight cultural resources studies have been conducted within a 0.5-mile radius of the current project (Table 2). Three of these studies (NCIC Nos. 86, 3847, and 3849) included portions of the current project APE.

The early plat and USGS maps provide additional information regarding the current project APE. The 1855 plat shows the project APE within "Tulere Swamp," with areas to the east of the current project planted in cultivated fields. Also east of the project APE are a few residences and the "Stockton Telegraph Road" running in a north-south direction. The 1859 plat shows the project APE on the border between "Swamp and Overflowed Land" and dry land east of the Sacramento River.

There is no development or improved land features within the project APE. The USGS 1907 Florin quadrangle map shows an unnamed rail line along the east side of the Sacramento River, west of the project APE and north of Freeport. The quad also shows the Western Pacific Railroad (now the Union Pacific Railroad) to the east, with historical Beach Lake south of the project APE, and the Sacramento Drainage Canal running in a north-south direction through Sections 12 and 13 east of the APE. No buildings or structures are noted on this map within the project vicinity. The 1953 sheet also shows the canal, Beach Lake, and the town of Freeport near the project APE.

As a result of the studies listed in Table 2, one cultural resource has been previously recorded within the 0.5-mile search radius, but outside the project APE (P-34-1607). A previously recorded historic-era site (CA-SAC-642H), comprising a residence and associated outbuildings on River Road, is located approximately 0.52 mile southwest of the southern extent of the APE.

Table 2. Previous Cultural Resources Studies within a Half-Mile Radius

NCIC Report #	Author	Date	Study
86	M. L. Russo	1978	An Archaeological Survey and Evaluation of the Proposed Freeport Shores Planned Unit Development and Sunnyside Meadows and Village Meadows Subdivisions in Sacramento County, California
356	Peak and Associates	1981	Cultural Resource Assessment for a Feasibility Study of Three 200-Acre Sites In Sacramento County, California
3368	Woodward-Clyde Consultants	1995	Cultural Resources Monitoring Report for the SMUD Cogeneration Pipeline Project
3571	L. Warner	1992	An Archaeological Reconnaissance of the Upper Beach Lake Wildlife Area Habitat Restoration Project
3847	Caltrans	1989	The Laguna Boulevard Interchange and Elk Grove Interchange Projects
3848	David Chavez and Associates	1990	Freeport Reorganization and South City Golf Course EIR: Archaeological Report
3849	David Chavez	1987	Cultural Resources Evaluation for the Riverbend/I-5 Interchange Project, Sacramento, California
3850	Jones and Stokes Associates, Inc.	1982	Archaeological Surveys of Three Selected Segments of the Buffer Zone Around the Sacramento Regional Wastewater Treatment Plant, Sacramento County, California

P-34-1607: One prehistoric cultural resource (P-34-1607) was previously recorded within the northern end of the project APE. P-34-1607 is an isolated occurrence of three pieces of flaked stone, recorded by G. Roark and C. Fish in 2002. The basalt flakes were apparently deposited on the surface as a result of burrowing rodent activity; the flakes were located within rodent back dirt piles.

2.11.2 Native American Sacred Lands File Search

Steven W. Carruthers Associates (SWCA) contacted the Native American Heritage Commission (NAHC) on April 2, 2007, requesting a search of their Sacred Lands File for traditional cultural resources. The reply from the NAHC, dated April 4, 2007, states that the search failed to indicate the presence of Native American sacred lands or traditional cultural properties in the immediate project APE (see Appendix C).

Letters requesting information regarding the project APE were sent on April 12, 2007 to the six Native American individuals or organizations identified by the NAHC who might have knowledge of the area. Follow-up telephone calls were placed on April 27, 2007. To date, the following replies have been received from the contact list to the letters or telephone calls. A letter from the Ione Band of Miwok Heritage Cultural Chair, Billie Blue Elliston, acknowledges receipt of the letter dated April 12, and asks that the Tribe be kept informed on the current project. In a telephone conversation, Mr. Leland Daniels stated that he is not aware of any known resources within the project vicinity. In a phone conversation with Mr. Randy Yonemura on May 9, 2007, he stated that he wished to meet at the SWCA office to discuss possible resources located within the APE. Mr.

Yonemura is currently traveling and could not give a definite date to meet. Appendix C also provides a tracking sheet showing the dates and comments received.

2.11.3 Cultural Resources Field Methods

SWCA Archaeologists Cindy Arrington and Christopher Corey conducted an intensive-level pedestrian survey of the project APE on April 13, 2007. The 200-foot wide corridor for the proposed route was surveyed with transects spaced no greater than 30 to 50 feet.

As shown on Figure 5, the intensive-level cultural resources survey for the current project covered the 200-foot wide project APE, comprised of the proposed 0.58-mile long relocation around the I-5 interchange.

The ground was examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, baked clay items, fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations) or historic debris (e.g., metal, glass, ceramics).

Photographs of the current project APE were taken with a digital camera. Locational data were recorded with a handheld Garmin GPS Map 76CS global positioning system (GPS) unit. In addition, the surrounding neighborhood was reviewed by car to check the general topography.

2.11.4 Significance Criteria

In considering impact significance under CEQA, the significance of the resource itself must first be determined. Generally, under CEQA, a historical resource (these include both built-environment and archaeological resources) is considered significant if it meets the criteria for listing on the California Register of Historical Resources (CRHR). Criteria for inclusion on the CRHR are set forth in CEQA Guidelines, Section 15064.5 and defined as follows:

(a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(b) Is associated with lives of persons important in our past;

(c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(d) Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA Guidelines also assigns special importance to the remains of Native Americans and specifies procedures to be used when human remains are discovered. These procedures are spelled out under PRC Section 5097.98. Criteria for eligibility for the CRHR are very similar to those (detailed below) which qualify a property for the NRHP, under the NHPA. Note that a property that is eligible for the NRHP is also eligible to the CRHR.

Impacts to "unique archaeological resources" are also considered under CEQA, as described under PRC Section 21083.2. A unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets one of the following criteria:

(a) Contains information needed to answer important scientific questions and there is a demonstrable public interest in that information;

(b) Has a special and particular quality, such as being the oldest of its type or the best available example of its type;

(c) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource means an archaeological artifact, object, or site which does not meet the above criteria.

To determine site significance through application of National Register criteria, several levels of potential significance which reflect different (although not necessarily mutually exclusive) values must be considered. As provided in 36 CFR 60.4:

> *The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and*
>
> 1. *That are associated with events that have made a significant contribution to the broad patterns of our history; or*
> 2. *That are associated with the lives of persons significant in our past; or*
> 3. *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
> 4. *That have yielded, or may be likely to yield, information important in prehistory or history.*

Under CEQA, a project potentially would have significant impacts if it would cause substantial adverse change in the significance of a historical resource (i.e., a cultural resource eligible to the CRHR, or archaeological resource defined as a unique archaeological resource which does not meet CRHR criteria), or would disturb human remains. A non-unique and non-significant archaeological or paleontological resource need be given no further consideration, other than the simple recording of its existence by the lead agency.

Under the implementing regulations of Section 106 of the NHPA (36 CFR 800), impacts to identified cultural resources need be considered only if the resource is a "Historic Property"; that is, only if it meets the criteria of eligibility for the National Register of Historic Places (36 CFR 60.4).

In some cases, determination of a resource's eligibility to the NRHP or CRHR (for its uniqueness) can be made only through extensive research, archaeological testing, and other costly and time-consuming methods. Where possible, to the maximum extent possible, resources will be avoided. If upon agency review of this petition there are resources that remain unevaluated and they cannot be avoided, formal eligibility evaluation will be undertaken. If the resource meets the criteria of eligibility to the NRHP, CRHR or is a unique archaeological resource, it will be formally addressed under Section 106 procedures as set forth under 36 CFR 800 and/or Section 21084.1 of California PRC and Sections 15064.5 and 15126.4 of the CEQA Guidelines.

2.11.5 Cultural Resources Findings

The linear project corridor surveyed by SWCA within the APE for the route shown on Figures 1 and 2 totals 0.58 mile, comprising an area totaling approximately 14 acres. This acreage (~100 percent) is composed of flat land, with an elevation gradient of approximately 4 to 14 feet above msl. The APE is bounded by open agricultural acreage on the north and south; the town of Freeport and the east bank of the Sacramento River to the west; and I-5 to the east.

P-34-1607: This isolated occurrence of three pieces of flaked stone, initially recorded in 2002 in the southwest corner of Section 12 within rodent back dirt piles, was not relocated during the current survey. At present, the vicinity of the isolate within the northern portion of the APE for the proposed relocation around the I-5 interchange has been tilled for row crops. Although the soil was devoid of vegetation at the time of the survey, the location of the prehistoric artifacts would have been disturbed by the agricultural activity. The artifacts were likely redistributed beneath the tilled soil, and any subsequent re-discovery of this isolated find is considered unlikely.

The 1994 Commission Decision included seven conditions to protect cultural resources:

- CUL-1 requires designation of a cultural resources specialist.
- CUL-2 requires the cultural specialist to provide guidance for protection.
- CUL-3 requires the cultural specialist be available and prepared to implement necessary monitoring and mitigation measures.
- CUL-4 requires the recovery, preparation for analysis and delivery for curation of all significant cultural resource materials.
- CUL-5 requires preparation of a cultural resources report.
- CUL-6 requires a final cultural resources report.
- CUL07 requires the final report be delivered to the regional archaeological information center.

Based on review of these conditions, and in addition to complying with current laws and regulations, the existing Conditions of Certification are considered adequate to protect the environment with respect to cultural resources quality.

2.12 Native American Coordination

The California NAHC was contacted on April 2, 2007 requesting a review of its Sacred Lands Files to obtain a list of Native American individuals and groups it believes should be contacted regarding the project. SWCA contacted the Native American Heritage Commission on April 2, 2007, requesting a search of their Sacred Lands File for traditional cultural resources. The Commission's response, dated April 4, 2007, states that their search failed to indicate the presence of Native American sacred lands or traditional cultural properties within the immediate project area.

2.13 Traffic and Transportation

The 1994 Commission Decision was evaluating a much longer project than the pipeline relocation proposed herein. As a result, the Decision had to consider potential interference with traffic on several major thoroughfares. Conditions of Certification included the following:

TRANS-1: Obtaining necessary Oversize and Overweight Permits.

TRANS-2: Comply with County and City Encroachment on Public Right of Ways.

TRANS-3: Limit construction to daylight hours, which generally are 9 a.m. to 4 p.m. in urban areas, 6 a.m. to 8 p.m. in urban areas, 7 a.m. to 6 p.m. on weekends.

TRANS-4: Encourage and support carpooling.

TRANS-5: Use standard underground construction methods including signs, barriers, lights, flagmen, etc.

TRANS-6: Use boring at specified road crossing locations.

TRANS-7: Observe all federal and State regulations for transport of hazardous materials.

TRANS-8: Implement a public participation-notification program along the Fruitridge Road corridor.

TRANS-9: Develop a construction mitigation plan with recommendations from the City of Sacramento and Sacramento County to address traffic control, protection of existing utilities and other specifications.

Transportation analysts from URS Corp. reviewed the project description with respect to the duration of construction, the type and number of vehicles and trips the construction is likely to generate, and the location of the project relative to major transportation corridors and thoroughfares. Based on this information and the Conditions in the Commission Decision, the analysts determined

that the relative contribution of traffic and potential impacts to transportation were likely to be immeasurable. With the implementation of TRANS-9, particularly—requiring a construction mitigation plan—it was determined that in addition to complying with current laws and regulations, the existing Conditions of Certification are adequate to protect the environment with respect to traffic and transportation.

2.14 Hazardous Materials Management

The 1994 Commission Decision described the analysis of potential risks to the public and identified that natural gas was the only component that had the potential to cause significant impact. The primary focus of the analysis was a large release of natural gas. Several experts were consulted and provided testimony. The District committed to develop, obtain approval for, and implement all safety and maintenance programs required by law, including:

- Pipeline Project Health and Safety Manual
- Emergency Action Plan
- Injury and Illness Prevention Plan

The District operates its own pipeline department to maintain and operate the pipeline safely. A pipeline control room is staffed 24 hours a day with a "One Call" damage prevention system. The District uses an enhanced supervisory control and data acquisition (SCADA) system capable of detecting leaks of a minimum flow of 1,600 cubic feet per minute, which is equivalent to a pinhole. The pipeline includes six automated mainline valves capable of sensing a pipeline rupture and closing automatically.

The Commission Decision included conditions for implementing additional safety measures, adding stainless steel warning tags, preparation of a Safety Management Plan Emergency Preparedness Plan, a SCADA system, and enhanced safety design factor table that exceeds the federal standards, inspection of all welds, and annual compliance reporting. The conditions imposed in the 1994 Commission Decision are adequate to prevent significant adverse impacts to hazardous materials.

2.15 Geological Hazards and Resources

The 1994 Commission Decision describes that the Commission examined the pipeline project to determine whether the District had adequately considered geologic and seismic conditions and hazards that affect the design, construction and operation of the proposed facility in order to ensure safe and reliable operation. In addition, the Commission examined the potential impacts on geologic resources in the event the project would disturb or limit access to mineral, gem, or fossil deposits [CEC, 1994].

It was determined that because the project would be buried, the project exposure to natural hazards was limited to floods and earthquakes. The Commission Decision noted that design features intrinsic to the pipeline, such as automatic shutoff valves and thicker-walled steel pipe, would maintain the integrity and safety of the line in the event of an earthquake. The design and materials required by

the District to construct a safe pipeline remain in effect to the present, and the new pipe would be constructed to the same or superior standards. This would ensure the pipe is safe from earthquake or other geologic hazards [CEC, 1994].

In the 1994 Commission Decision, potential impacts to paleontological resources were considered impacts to geological resources. The following section describes the evaluation of paleontological resources.

Field surveys along the original pipeline did not reveal any fossil remains during construction.

Qualified paleontologists reviewed existing literature and performed field surveys along the proposed re-located pipeline route to identify any potential fossil resources. SWCA paleontologist Jessica DeBusk requested the museum records search and authored the technical paleontological section of the appended report (Appendix C). Cara Corsetti, Qualified Paleontologist and SWCA Paleontology Program Director, provided QA/QC review. At SWCA's request on behalf of the District, the vertebrate paleontology section of the University of California Museum of Paleontology (UCMP) completed a detailed review of museum collections records on April 11, 2007. The records search confirmed that a significant vertebrate fossil locality had been previously recorded within a 2-mile radius of the APE[2]. The UCMP locality V74086 yielded a fossilized ilium of *Mammuthus columbi* from the Riverbank Formation.

2.15.1 Professional Standards

The Society of Vertebrate Paleontologists (SVP) has established standard guidelines [SVP, 1995] that outline professional protocols and practices for the conducting of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological laws, ordinances, regulations, and statutes (LORS) accept and utilize the professional standards set forth by the SVP.

As defined by the SVP [1995, p. 26], significant nonrenewable paleontological resources are defined as:

> *…Fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or paleobotanical fossils except when present within a given vertebrate assemblage. Certain invertebrate and plant fossils may be defined as significant by a project paleontologist, local paleontologist, specialists, or special interest groups, or by lead agencies or local governments.*

[2] The APE is the area within which the direct and indirect impacts of project construction may have an effect on cultural or paleontological resources. The APE for this project includes 200-foot wide corridors.

As defined by the SVP [1995, p. 26], significant fossiliferous deposits are defined as:

> *A rock unit or formation which contains significant nonrenewable paleontologic resources, here defined as comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces and other data that provide taphonomic, taxonomic, phylogenetic, ecologic, and stratigraphic information (ichnites and trace fossils generated by vertebrate animals, e.g., trackways, or nests and middens which provide datable material and climatic information). Paleontologic resources are considered to be older than recorded history and/or older than 5,000 years, BP [before present].*

Based on the significance definitions of the SVP (1995), all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

A geologic unit known to contain significant fossils is considered to be "sensitive" to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either disturb or destroy fossil remains directly or indirectly. This definition of sensitivity differs fundamentally from that for archaeological resources as follows:

> *It is extremely important to distinguish between archaeological and paleontological (fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontologic sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontologic potential in each case. [SVP, 1995]*

Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are contained within surficial sediments or bedrock and are, therefore, not observable or detectable unless exposed by erosion or human activity. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken in order to prevent adverse impacts to these resources.

2.15.2 Resource Assessment Guidelines

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under federal (National Environmental Policy Act (NEPA)), State

(CEQA), and local (County of Sacramento) laws and regulations. This study satisfies project requirements in accordance with CEQA (13 PRC, 2100 et seq.) and Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792). This analysis also complies with guidelines and significance criteria specified by the SVP (1995) and requirements set forth by the CEC.

2.15.3 Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources," the SVP [1995, p. 23] defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

- **High Potential.** Rock units from which vertebrate or significant invertebrate fossils or suites of plant fossils have been recovered and are considered to have a high potential for containing significant nonrenewable fossiliferous resources. These units include, but are not limited to, sedimentary formations and some volcanic formations that contain significant nonrenewable paleontologic resources anywhere within their geographical extent and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas that contain potentially datable organic remains older than recent, including deposits associated with nests or middens, and areas that may contain new vertebrate deposits, traces, or trackways are also classified as significant.
- **Low Potential.** Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils. Such units will be poorly represented by specimens in institutional collections.
- **Undetermined Potential.** Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials.
- **No Potential.** Metamorphic and granitic rock units do not yield fossils and therefore have no potential to yield significant nonrenewable fossiliferous resources.

For geologic units with high potential, full-time monitoring is generally recommended during any project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontologic potential of the rock units present within the study area.

2.15.4 Paleontological Resources Methods

Due to the nature of the fossil record, paleontologists cannot know either the quality or the quantity of fossils present in a given geologic unit prior to natural erosion or human-caused exposure. Therefore, in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce scientifically significant fossils elsewhere within the same geologic unit (both within and outside of the study area) or a unit representative of the same depositional environment.

The vertebrate paleontology section of UCMP performed a detailed review of museum collections records for the purposes of determining whether there are any known fossil localities in or near the project APE. Published and unpublished literature and geologic maps were reviewed, and mitigation measures specific to this project were developed in accordance with the SVP's professional standards and guidelines (1995). A paleontological sensitivity map was created using these findings.

2.15.5 Geologic Setting

The Sacramento area lies within the Great Valley geomorphic province of California, which is dominated by alluvial plains and low relief alluvial fans. The Great Valley province is an asymmetrical synclinal trough bounded to the east by the Sierra Nevada and the west by the Coast Range that was originally formed as a Neogene forearc basin. It is divided into two sub-basins: the Sacramento basin to the north and the San Joaquin basin to the south [Appendix C: Weissman et al., 2005]. The study area is situated within the Sacramento basin, immediately adjacent to the Sacramento River. Generalized mapping by Wagner et al. [Appendix C, 1981] and more detailed mapping by Atwater [Appendix C, 1982] indicates that the project APE is underlain by the following three geologic units: (1) Natural levee deposits (QI), (2) Flood-basin deposits (Qb), and (3) Riverbank Formation (Qro), as shown in Table 3.

Table 3. Geologic Mapping by Atwater (1982)

Map Symbol	Age	Geologic Unit Description	Paleontological Sensitivity Rating
QI	Holocene	Natural levee deposits composed of clayey silt, silt, and fine sand of Holocene age.	Low
Qb	Holocene	Flood-basin deposits composed of silty clay and clayey silt deposited mostly by flood waters from the Sacramento River.	Low
Qro	Pleistocene	Older unit of the Riverbank Formation composed of arkosic alluvial sands and silts, containing some locally derived detritus.	High

2.15.5.1 Natural Levee Deposits (QI)

These natural levee, crevasse-splay, and floodplain sediments consist of non-calcareous clayey silt, silt, and fine grained sand of Holocene age. This geologic unit is too geologically young to contain

fossilized remains and is assigned a low paleontological sensitivity rating; however, resource sensitive sediments are likely to be encountered immediately beneath this unit at an unknown but potentially shallow depth.

2.15.5.2 Flood Basin Deposits (Qb)

Flooding of the Sacramento River during the Holocene created quiet and nearly lacustrine conditions during which time flood basin sediments of silty clays and clayey silts were deposited. According to Atwater [Appendix C, 1982], these flood basin deposits are locally at least 5 feet in depth. Although these sediments are too geologically young to contain fossilized remains, this unit is underlain by older paleontologically sensitivity sediments (Riverbank Formation).

2.15.5.3 Riverbank Formation (Qro)

The Riverbank Formation was first named after a designated type section along the south bluff of the Stanislaus River within the City of Riverbank. It consists of weakly consolidated reddish-brown siltstones, sandstones, and pebble conglomerates with a few thin intervals of brick-red claystone. With a variable thickness between 20 and 60 meters, the formation comprises at least three distinct alluvial units in the counties of Stanislaus, Sacramento, Madera, and Fresno. Based on both geologic and paleontologic evidence, the Riverbank Formation is determined to be Middle Pleistocene in age (130,000 and 450,000 years BP) (Marchand and Allwardt, 1981).

Numerous fossil resources have been recovered within the Riverbank Formation and may well be encountered at shallow depths within this unit. Fossil vertebrates have been previously reported from Riverbank Formation sediments near their type area [Appendix C: Garber, 1989; Jefferson, 1991a; Jefferson, 1991b] and at numerous other scattered localities [Appendix C: Fisk and Lander, 1999; Lander, 1999]. Fossils previously collected from the Riverbank Formation include clams, fish, turtles, frogs, snakes, birds, bison, mammoths, mastodons, ground sloths, camels, horses, deer, dire wolves, coyotes, rabbits, rodents, and plants. Marchand and Allwardt [Appendix C, 1981] reported additional unidentified bones and petrified wood. Because vertebrate fossils have been previously discovered within the Riverbank Formation, this unit is determined to have a high paleontological sensitivity under SVP guidelines.

2.15.6 Paleontological Resources Results

In the 1994 Commission Decision, potential impacts to paleontological resources were considered impacts to geological resources. The following section describes the evaluation of paleontological resources.

A museum records search of vertebrate collections maintained by the UCMP confirmed that at least one significant vertebrate fossil locality has been previously recorded within a 2-mile radius of the Project APE (Appendix C). UCMP locality V74086 yielded a fossilized ilium of *Mammuthus columbi* (Columbian mammoth) from the Riverbank Formation [Appendix C: Holroyd, 2007]. Additionally, during construction monitoring of the Cosumnes Power Plant Natural Gas Pipeline Project in 2005, SWCA paleontologists discovered a partial skeleton of Mammuthus columbi within

the Riverbank Formation. This highly significant fossil locality, located approximately 10 miles south of the current study area, yielded teeth, cranial bones, tusks, and other bones making it a highly significant find [Appendix C: SWCA, 2005].

Project construction may result in adverse impacts to significant paleontological resources unless proper mitigation measures are implemented. Based on the paleontological sensitivity of the Riverbank Formation underlying the study area, project-specific monitoring should be implemented to reduce impacts to less-than-significant.

2.15.7 Conditions Imposed by 1994 Certification

The following conditions were included in the 1994 Commission Decision:

1. Designation of a qualified environmental monitor, with experience in identifying paleontological resources;
2. Securing an agreement with the Museum of Paleontology to assist in salvage and curation of any fossil discoveries;
3. An agreement for the environmental monitor to monitor construction activities for fossil specimens when construction is occurring; and
4. An agreement to recover and transport paleontological resource materials for curation.

The conditions imposed in the 1994 Commission Decision are adequate to prevent significant adverse impacts to geologic hazards and resources.

3.0 POTENTIAL COMPLIANCE AND LANDOWNER IMPACTS

The following subsections respond to specific requirements of Section 1769(a) of the California Energy Commission' Siting Regulations (20 CCR 1769(a)), regarding potential impacts to the facilities compliance with laws and regulations and also the potential impacts of the modification on the public and adjacent landowners.

3.1 Impacts the Modification May Have on the Facility's Ability to Comply with Applicable Laws and Regulations

The project modification, as proposed, would have no adverse effect on the ability of the certified facility to comply with applicable laws and regulations. The pipeline would continue to operate in compliance with all applicable laws and regulations.

3.2 How the Modification Affects the Public

With implementation of the conditions proposed, the project modification would have no significant affect on the public.

3.3 Property Owners Potentially Affected by the Modification

Property owners within 0.5 mile of the proposed pipeline alignment were identified through a search of title records, and compiled by Paragon Partners. The list is attached to this application as Appendix A.

3.4 Potential Effect on Nearby Property Owners, the Public and Parties in the Application Proceedings

Project construction would be visible as a small construction project to property owners on the north side of Freeport, for a period of four to six weeks during the summer. The project would generate minor amounts of dust that would probably not be noticeable in the context of local ongoing agricultural operations.

Construction would probably interfere with the farmer's ability to plant and raise a safflower crop during the year of construction, but since the property is already proposed for residential development, there may be no intention to plant at crop in 2009 (or 2008, as applicable). In this case, it would have no effect on the use of the property in that year.

The project would generate construction-related noise for two to three weeks during the summer. The construction noise would be largely masked by the noise generated from the adjacent I-5 freeway.

Based on review of the project and existing conditions, and in addition to complying with current laws and regulations, the existing Conditions of Certification are considered adequate to protect the environment with respect to noise impacts.

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Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, 1990c. *California's Wildlife, Volume 1 Amphibians*. California Department of Fish and Game. Sacramento, California. 365 pps.

APPENDIX A

Roadway Construction Emissions Model Input and Results

Road Construction Emissions Model, Version 5.2

Emission Estimates for -> SMUD Pipeline Relocation					Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	
Grubbing/Land Clearing	0	0	0	0	0	0	
Grading/Excavation	30	339	73	10	5	5	
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0	
Paving	0	0	0	0	0	0	
Maximum (pounds/day)	30	339	73	10	5	5	
Total (tons/construction project)	0.50	1.07	5.72	0.17	0.09	0.08	<-tons

Notes: Project Start Year -> 2008

Project Length (months) -> 2 (1.5 months)

Total Project Area (acres) -> 4

Maximum Area Disturbed/Day (acres) -> 1

Total Soil Imported/Exported (yd^3/day)-> 0

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Emission Estimates for -> SMUD Pipeline Relocation					Exhaust	Fugitive Dust	
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	
Grubbing/Land Clearing	0	0	0	0	0	0	
Grading/Excavation	14	154	33	5	2	2	
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0	
Paving	0	0	0	0	0	0	
Maximum (kilograms/day)	14	154	33	5	2	2	
Total (megagrams/construction project)	0.45	0.97	5.19	0.15	0.08	0.07	<-megagrams

Notes: Project Start Year -> 2008

Project Length (months) -> 2 (1.5 months)

Total Project Area (hectares) -> 2

Maximum Area Disturbed/Day (hectares) -> 0

Total Soil Imported/Exported ($meters^3$/day)-> 0

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Road Construction Emissions Model

Data Entry Worksheet

Version 5.2

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C28.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Input Type

Project Name	SMUD Pipeline Relocation	
Construction Start Year	2008	Enter a Year between 2000 and 2010 inclusive
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	2	months (1.5 months)
Predominate Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
On-Road Emission Factors: Enter 1, 2, 3, or 4	4	1. Emfac7fv1.1 4. Emfac2002 (default) 2. Emfac7G 3. Emfac2001
Project Length	0.6	miles
Total Project Area	4	acres
Maximum Area Disturbed/Day	1	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported		yd^3/day
Soil Exported		yd^3/day
Average Truck Capacity	20	yd^3 (assume 20 if unknown)

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C37 through C40.

Construction Periods	User Override of Construction Months	Program Calculated Months	2000	%	2001	%	2002
Grubbing/Land Clearing	0.00	0.15	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	1.50	0.60	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0.00	0.53	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.23	0.00	0.00	0.00	0.00	0.00
Totals	1.50	1.50					

Hauling emission default values can be overridden in cells C48 through C50.

Soil Hauling Emissions					
User Input	User Override of Soil Hauling Defaults	Default Values			
Miles/round trip		30			30
Round trips/day	8	0			8
Vehicle miles traveled/day (calculated)			240		
Hauling Emissions	**ROG**	**NOx**	**CO**	**PM10**	
Emission rate (grams/mile)	0.75	8.63	7.25	0.27	
Pounds per day	0.4	4.6	3.8	0.1	
Tons per contruction period	0.01	0.08	0.06	0.00	

Worker commute default values can be overridden in cells C62 through C67.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values			
Miles/ one-way trip		20			20
One-way trips/day	40	2			40
No. of employees: Grubbing/Land Clearing	0	4			0
No. of employees: Grading/Excavation	20	7			20
No. of employees: Drainage/Utilities/Sub-Grade	0	7			0
No. of employees: Paving	0	5			0
	ROG	**NOx**	**CO**	**PM10**	
Emission rate (grams/mile)	0.30		6.25	0.04	
Emission rate (grams/trip)	1.62	0.72	16.13	0.02	
Pounds per day - Grubbing/Land Clearing	0.0	0.0	0.0	0.0	
Tons per const. Period - Grub/Land Clear	0.0	0.0	0.0	0.0	
Pounds per day - Grading/Excavation	16.1	2.5	277.1	1.4	
Tons per const. Period - Grading/Excavation	0.3	0.0	4.6	0.0	
Pounds per day - Drainage/Utilities/Sub-Grade	0.0	0.0	0.0	0.0	
Tons per const. Period - Drain/Util/Sub-Grade	0.0	0.0	0.0	0.0	
Pounds per day - Paving	0.0	0.0	0.0	0.0	
Tons per const. Period - Paving	0.0	0.0	0.0	0.0	
tons per construction period	0.3	0.0	4.6	0.0	

Water truck default values can be overriden in cells C87 through C89 and E87 through E89.

Water Truck Emissions	Number of Water Trucks	Program Estimate of Number of Water Trucks	User Override of Water Truck Miles Traveled	Default Values Miles Traveled/Day	
Grubbing/Land Clearing - Exhaust	0	1		40	0
Grading/Excavation - Exhaust	1	1	3	40	3
Drainage/Utilities/Subgrade	0	1		40	0
	ROG	**NOx**	**CO**	**PM10**	
Emission rate (grams/mile)	0.75	8.63	7.25	0.27	
Pounds per day - Grubbing/Land Clearing	0.0	0.0	0.0	0.0	
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	
Pound per day - Grading/Excavation	0.0	0.1	0.0	0.0	
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	
Pound per day - Drainage/Utilities/Subgrade	0.0	0.0	0.0	0.0	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	

Fugitive dust default values can be overridden in cells C104 and C105.

Fugitive PM10 Dust	User Override of Max Acrerage/Day	Default Maximum Acreage/Day	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing	0	1	0.0	0.0
Fugitive Dust - Grading/Excavation	1	1	5.0	0.1
Fugitive Dust - Drainage/Utilities/Subgrade	0	1	0.0	0.0

Off road equipment default number of vehicles can be overridden in cells B115 through B224.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
		Compactor	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
	1	Dozer	0.00	0.00	0.00	0.00
		Excavator	0.00	0.00	0.00	0.00
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
		Grader	0.00	0.00	0.00	0.00
		Loaders, Rubber Tired	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00
		Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
	1	Scrapper	0.00	0.00	0.00	0.00
	1	Signal Boards	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00
		pounds per day	0.0	0.0	0.0	0.0
		tons per period	0.0	0.0	0.0	0.0

Grading/Excavation	Number of Vehicles		ROG	CO	NOx	PM10
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
1		Compactor	2.08	10.32	9.43	0.52
	0	Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
1		Dozer	2.72	12.90	16.16	0.84
2	1	Excavator	3.68	12.67	12.94	0.68
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
	1	Grader	0.90	4.23	7.30	0.40
	1	Loaders, Rubber Tired	0.69	3.38	5.26	0.28
		Off-Highway Trucks	0.00	0.00	0.00	0.00
	0	Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
	1	Scrapper	2.73	12.47	11.97	0.64
	1	Signal Boards	0.78	1.92	2.84	0.27
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00
		max pounds per day	13.6	57.9	65.9	3.6
		tons per period	0.2	1.0	1.1	0.1

Drainage/Utilities/Subgrade	Number of Vehicles		ROG	CO	NOx	PM10
Override of Default Number of Vehicles	*Program-estimate*	Type	pounds/day	pounds/day	pounds/day	pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
	1	Compactor	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
		Dozer	0.00	0.00	0.00	0.00
		Excavator	0.00	0.00	0.00	0.00
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
	1	Grader	0.00	0.00	0.00	0.00
		Loaders, Rubber Tired	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00
		Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
	1	Scrapper	0.00	0.00	0.00	0.00
	1	Signal Boards	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
	1	Trenchers	0.00	0.00	0.00	0.00
		max pounds per day	0.0	0.0	0.0	0.0
		tons per period	0.0	0.0	0.0	0.0

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C235 through C256, E235 through E256, and G235 through G256.

Equipment		Default Values Horsepower		Default Values Load Factor		Default Values Hours/day
Bore/Drill Rigs		218		0.75		8
Concrete/Industrial Saws		84		0.73		8
Cranes		190		0.43		8
Crawler Tractors		143		0.575		8
Crushing/Proc. Equipment		154		0.78		8
Excavators		180		0.58		8
Graders		174		0.575	6	8
Off-Highway Tractors		255		0.41		8
Off-Highway Trucks		417		0.49		8
Other Construction Equipment		190		0.62		8
Pavers		132		0.59		8
Paving Equipment		111		0.53		8
Rollers		114		0.43		8
Rough Terrain Forklifts		94		0.475		8
Rubber Tired Dozers		352		0.59	6	8
Rubber Tired Loaders		165		0.465	6	8
Scrapers		313		0.66	6	8
Signal Boards		25		0.82		8
Skid Steer Loaders		62		0.515		8
Surfacing Equipment		437		0.49		8
Tractors/Loaders/Backhoes		79		0.465		8
Trenchers		82		0.695		8

Default load factors from SCAQMD CEQA Handbook, 1993.

Default horsepower values from Appendix B, California Air Resources Board's Offroad Model (see also Appendix B of this spreadsheet).

Signal board horsepower based on: U.S. EPA, 1998. Final Regulatory Impact Analysis: Control of Emissions from Nonroad Diesel Engines (EPA420-R-98-016).

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END OF DATA ENTRY SHEET

APPENDIX B

Biological Resources Assessment for the South Sacramento Gas Pipeline Relocation Project (NSR No. 50844)

(Bound Separately)

Not included.

APPENDIX C

Cultural and Paleontological Resources Inventory for the SMUD Gas Pipeline Relocation Project, Sacramento County, California

(Bound Separately)

Not included.

APPENDIX D

List of Property Owners Potentially Affected by the Modification

Sacramento City Unified School District
5735 47th Avenue
Sacramento, CA 95824

GE Capital Information Technology
10 Riverview Drive
Danbury, CT 06810

Health For All Inc.
2730 Florin Road
Sacramento, CA 95822

May & Wayne Kwong
4444 Mead Avenue
Sacramento, CA 95822

Sacramento Whispering Pines Associates
42 N. Sutter Street, #406
Stockton, CA 95202

City of Sacramento
915 I Street, #5
Sacramento, CA 95814

Stephen Ross Artz
724 Commons Drive
Sacramento, CA 95825

Freeport Associates
818 19th Street, #200
Sacramento, CA 95814

Antioch Progressive Baptist Church Inc.
7650 Amherst Street
Sacramento, CA 95832

Allen & Delores Duarte
Revocable Trust 1995
P.O. Box 95
Clarksburg, CA 95621

Richard & Gayle Bennett
8040 Freeport Blvd.
Sacramento, CA 95832

Tambert 2006 Family Trust
8054 Freeport Blvd.
Sacramento, CA 95832

Freeport Landing LLC
7485 Rush River Drive, #710
Sacramento, CA 95831

Bryon McCluskey
8070 Freeport Blvd.
Sacramento, CA 95832

Freeport Ventures LLC
8055 Freeport Blvd.
Sacramento, CA 95832

Gateway Pacific Contractors Inc.
8055 Freeport Blvd.
Sacramento, CA 95832

Charles Pacheco
8031 Freeport Blvd.
Sacramento, CA 95832

Bank of America Leasing & Cap LLC
P.O. Box 105578
Atlanta, GA 30348

Vicki Anderson
8025 Freeport Blvd.
Sacramento, CA 95832

Rachel Anderson
8015 Freeport Blvd.
Sacramento, CA 95822

Janet Remme
7709 So. Parkway
Sacramento, CA 95823

Loretta York Family Trust
8013 Freeport Blvd.
Sacramento, CA 95832

Diane Watkins Trust
1260 Vanderbilt Way
Sacramento, CA 95825

State of California
1102 Q Street
Sacramento, CA 95814

Marian Scalora
8101 Freeport Blvd.
Sacramento, CA 95832

William Gavial
8115 Freeport Blvd.
Sacramento, CA 95831

John & Josey Hayes
8120 Freeport Blvd.
Sacramento, CA 95832

Romeos Bait Shop
8120 Freeport Blvd.
Sacramento, CA 95832

John Morais 1985 Trust
5832 Laguna Valley Way
Elk Grove, CA 95758

Harry Tonkin
54254 River Road
Clarksburg, CA 95612

Stanley Rodrigues Trust
5915 Kahara Court
Sacramento, CA 95822

State of California
8140 Freeport Blvd.
Sacramento, CA 95832

Lawrence Day Living Trust
7624 Windbridge Drive, #37
Sacramento, CA 95831

Catherine Morabito
8174 Freeport Blvd.
Sacramento, CA 95832

Richard Rowland
608 Coriander Way
Sacramento, CA 95831

Robert & Nancy Bickley
33735 Bluff Drive
Coarsegold, CA 93614

Anna Chavez
8201 Freeport Blvd.
Sacramento, CA 95832

Moon River Inn
8201 Freeport Blvd.
Sacramento, CA 95832

State of California
111 I Street
Sacramento, CA 95814

Sacto. Regional Co. San. District
9660 Ecology Lane
Sacramento, CA 95827

Joe Borges
54254 River Road
Clarksburg, CA 95612

Bartley Cavanaugh Golf Clubhouse LLC
3645 Fulton Avenue
Sacramento, CA 95821

Northern Leasing System Inc.
2009 Chenault Drive, #100
Carrollton, TX 75006

Morton Golf LLC
3645 Fulton Avenue
Sacramento, CA 95821

Floyd Levick
8351 River Road
Sacramento, CA 95832

Sacto. Regional Co. San. District
10545 Armstrong Avenue, #101
Mather, CA 95655

Sacto. Regional Co. San. District
8521 Laguna Station Road
Elk Grove, CA 95758